

Chapter 5. Section 4(f) Evaluation

5.1 PURPOSE OF THIS SECTION 4(f) EVALUATION

SECTION 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303 Section 4(f)) declared that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.” Section 4(f) properties are publicly owned parks, recreation areas, or wildlife and waterfowl refuges of national, state, or local significance, and historic resources eligible for listing in the National Register of Historic Places or are locally significant. Section 4(f) specifies that:

“the Secretary [of Transportation] may approve a transportation program or project...requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only

if there is no prudent and feasible alternative to using that land; and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.”

In general, a Section 4(f) “use” occurs when:

- Section 4(f) land is permanently acquired for a transportation facility
- There is a temporary occupancy of Section 4(f) land that is adverse in terms of the Section 4(f) preservationist purposes, or
- Section 4(f) land is not incorporated into the transportation project, but the project’s proximity impacts are so severe that the purpose for which the Section 4(f) site exists are substantially impaired. (This use is also known as “constructive use.”)

The FHWA prepared this Section 4(f) evaluation because the project would adversely affect or “use” historic properties eligible for listing in the NRHP, and two recreation facilities would be indirectly affected. The evaluation describes the proposed

action and how it might affect Section 4(f) properties, discusses alternatives that would avoid the use of the Section 4(f) properties, and describes measures undertaken to minimize harm to the properties.

5.2 PROPOSED PROJECT

The FHWA, in cooperation with USFS and NPS, proposes to reconstruct a 30-km (18-mi.) portion of the Beartooth Highway in Wyoming. The proposed project would begin at KP 39.5, just west of the Clay Butte Lookout turnoff, traverse east over Beartooth Pass, and end at the Montana/Wyoming state line at KP 69.4. This segment of the road is referred to as Segment 4.

Purpose and Need

The *Purpose* section of Chapter 1 identified three needs that would be addressed by Segment 4 reconstruction:

- Support management of National Forest lands adjacent to the road, including maintaining the Scenic Byway/All-American Road qualities
- Maintain an efficient transportation link between Red Lodge, Montana and YNP that safely accommodates projected 2025 traffic
- Provide a roadway that could be reasonably maintained in a sustainable manner by a maintaining agency

Needs Associated With Land Management Goals

Segment 4 of the Beartooth Highway traverses National Forest lands managed by the SNF. The SNF Land and Resource Management Plan established a forest-wide goal of managing activities along travel routes to maintain and enhance recreation and scenic values (SNF 1986).

Along the Beartooth Highway corridor, the Forest Plan emphasizes rural and roaded natural recreation opportunities. The designation of the Wyoming portion of the road as an All-American Road indicates the road has one-of-a-kind features that do not exist elsewhere. The road is a destination unto itself. A Corridor Management Plan has been prepared for the road. Reconstructing the road would improve its deteriorating condition, safely accommodate current and projected recreational use, and allow the SNF to continue to manage activities along the road, and enhance recreation and scenic values in accordance with the Forest Plan.

Needs Associated With Accommodating Projected Traffic

Since Segment 4 was constructed in the 1930s, the type and amount of traffic on the road has changed substantially. It does not safely accommodate current vehicle types, such as recreational vehicles or trucks with trailers. Projected future traffic volumes will exacerbate the current situation. Without reconstruction, the road will continue to deteriorate and reach a level of service and safety unacceptable to the traveling public (FHWA 1994). Reconstruction would address seven primary deteriorating or deficient elements that contribute to safety concerns of the existing road: roadway surface; road alignment; travel lane width; shoulder width; drainage facilities; pullouts and parking area; and bridges. Chapter 1 describes the road's deteriorating or deficient elements in greater detail.

The bridges, which are historic, are too narrow for existing traffic and do not provide adequate load carrying capacity for anticipated traffic. The bridge railings are substandard, and they do not have approach guardrails. The Little Bear Creek bridge #1 is not long enough to handle the high runoff flows of the creek because of ice blockage.

The structural conditions of the bridges vary, with the Little Bear Creek bridge #1 having a fair to poor condition rating, and the Beartooth Lake bridge having a good condition rating. The FHWA estimated the useful life of all bridges under current load limits and without major repairs to be 15 to 20 years (FHWA 1999). All new bridges would have a 75-year design life.

Needs Associated with Maintenance

Because no agency has assumed ownership of the Wyoming sections of the Beartooth Highway, including Segment 4, and maintenance funding has been inconsistent, maintenance of the Beartooth Highway has been a significant issue for several decades. In its current condition, Segment 4 is very difficult to maintain. Consequently, neither Montana nor Wyoming has assumed ownership of the road. Neither state has put the portion of the road from YNP to the Montana/Wyoming state line on its State Transportation Plan. The NPS has maintained Segment 4 historically. Although Congress is authorized to appropriate funds for maintenance, the NPS is not allocated funding for maintenance. Because the NPS is not allocated regular funding for snowplowing or maintenance, the road occasionally is not adequately snowplowed or maintained. In the 1998 Department of the Interior and Related Agencies Appropriation Act, the USFS was given the responsibility and funding for snowplowing of the Beartooth Highway from KP 0 in YNP, into and through Wyoming, to KP 69.4 on the Wyoming/Montana state line. The USFS contracts with the NPS to meet this required snowplowing responsibility. While the USFS was provided funding for these recent activities, it is not prepared to assume long-term maintenance responsibility because of insufficient funding, personnel, and equipment to plow and maintain a paved highway.

The Wyoming Transportation Commission has indicated that it will consider assuming ownership of U.S. 212 in Wyoming when the entire section within Wyoming is reconstructed to current standards. If the State of Wyoming does not agree to accept jurisdiction and maintenance responsibility after reconstruction, the maintenance responsibility will remain with the Department of the Interior. The proposed project needs to provide a roadway with design features compatible with current maintenance equipment and techniques, affording safe and efficient maintenance practices.

Alternatives Analyzed in the Environmental Impact Statement

Five build alternatives and the No Action Alternative are analyzed in detail in the EIS. The alternatives are:

- Alternative 1—No Action (No Road Reconstruction)
- Alternative 2—Recreation and Cultural Resource Emphasis
- Alternative 3—Wildlife Resources Emphasis
- Alternative 4—Highway Operations, Safety, and Maintenance Emphasis
- Alternative 5—Biological Resource Emphasis
- Alternative 6—Blended Emphasis (Preferred)

The FHWA developed the alternatives with an emphasis on one or more significant issues to provide a full range of alternatives and a clear distinction between alternatives. All build alternatives would include reconstructing and widening the entire road, and, except for Alternative 2, removing four historic bridges and building new ones. Alternative 2 would remove three of the four bridges, leaving Little Bear Creek bridge #2 in place. The new alignment in all build alternatives

would closely follow the existing alignment throughout most of the route. Realignment or alternative construction methods are being considered in six locations—Beartooth Ravine, Top of the World Store, Little Bear Lake fen, Frozen Lake, Bar Drift, and Albright Curve. The roadway width would be 8.4 m (28 ft.), 9.0 m (30 ft.), or 9.6 m (32 ft.), depending on the alternative. Detailed descriptions of each alternative are presented in Chapter 2.

In the No Action Alternative, the FHWA would not reconstruct Segment 4 of the Beartooth Highway, and road funds would not be expended on reconstruction. The road would remain 5.5 m (18 ft.) wide and in its existing alignment. The historic bridges would not be dismantled. The maintenance needed on the bridges would not be completed. Existing pullouts would remain in their same location and condition. Maintenance responsibilities would remain with the Department of the Interior. Alternative 1 would not fulfill the three primary needs for the reconstruction described in Chapter 1.

Alternative 2 has a recreation and cultural resource emphasis; the roadway width would be 9.6 m (32 ft.) to accommodate larger recreation vehicles, pedestrians, and bicyclists. With Alternative 2, the road would deviate from the existing alignment east of the Top of the World Store and preserve Little Bear Creek bridge #2, although it would no longer function as part of the roadway. Alternative 3 has a wildlife resource emphasis; the new alignment would follow the existing alignment closely and the roadway would be 8.4 m (28 ft.) wide. Alternative 4 has a highway operations, safety, and maintenance emphasis. The roadway width would be 9.6 m (32 ft.). The alignment options would have the highest design speeds. With a biological resource emphasis, Alternative 5 would have a road width of 8.4 m (28 ft.), and the

alignment options, including Option A at the Top of the World Store, would minimize disturbance to wetlands and fens, riparian areas, sensitive plants, and wildlife species that depend on these habitats. Alternative 6 balances highway operations, safety and maintenance needs with the minimization of environmental impacts. The roadway width would be 9.6 m (32 ft.) [3.6 m (12 ft.) lanes and 1.2 m (4 ft.) shoulders] from the project start to the Clay Butte Lookout turnoff, 9.0 m (30 ft.) [3.6 m (12 ft.) lanes and 0.9 m (3 ft.) shoulders] from the Clay Butte Lookout turnoff to the road closure gate past Long Lake, and 8.4 m (28 ft.) [3.6 m (12 ft.) lanes and 0.6 m (2 ft.) shoulders] from the road closure gate to the end of the project. The road would use the Existing Alignment Options at Frozen Lake and Bar Drift, and have realignments at Beartooth Ravine, Top of the World Store, and Albright Curve.

The alignment in all build alternatives would closely follow the existing alignment near Beartooth Campground. In Alternatives 2, 5 and 6, the road would be about 100 m (330 ft.) closer to the Island Lake Campground than the existing road (Figure 44).

Fox Creek Campground, located 11 km (7 mi.) southeast of Cooke City, is the preferred workcamp location in all build alternatives. The use of this campground as a workcamp would not be a Section 4(f) use (see Section 5.7 for more discussion).

5.3 SECTION 4(F) PROPERTIES AND ENVIRONMENTAL EFFECTS

Section 4(f) Properties in Project Area

Recreation Areas

Campgrounds. Two SNF campgrounds, the Beartooth Lake Campground and the Island Lake

Campground, are adjacent to Segment 4 (Figure 45). Eleven other campgrounds are located along the road between Red Lodge, Montana and YNP. The Beartooth Lake Campground is about 160 m (525 ft.) north of the existing road. A gravel road west of the campground provides access. A dense montane forest separates the campground from the road. Island Lake Campground is about 275 m (900 ft.) from the existing road. A montane forest and mountain meadows are between the campground and the existing road. A gravel road south of the campground provides access. The campgrounds have parking spurs, tables, fire rings, vault toilets, and boat launches. Island Lake Campground has 21 campsites and Beartooth Lake Campground has 20 campsites. The campgrounds do not open until mid- to late June, depending on snow conditions.

Recreation Trails. Three recreation trails have trailheads adjacent to the road (Figure 45). The Beartooth Loop National Recreation Trail (#613.1B) originates at the Gardner Lake trailhead, just east of Gardner Lake. It is a National Recreation Trail under the National Trail System Act. It is 21.6 km (14.4 mi.) long and offers views of the alpine portion of the Beartooth Plateau. The Hauser Lake trail (#614) originates east of Long Lake and connects to Beartooth Loop National Recreation Trail near Losekamp Lake. The Deep Lake trail (#623) originates near the Albright Curve, east of the Red Lodge Ski Race Camp. Section 3.9 of Chapter 3 discusses the campgrounds and other recreation resources in greater detail.

Historic Resources

Five resources determined to be eligible for listing in the NRHP are found along the road. Segment 4 of the road and four bridges, Beartooth Lake bridge, Little Bear Creek bridge #1, Little Bear

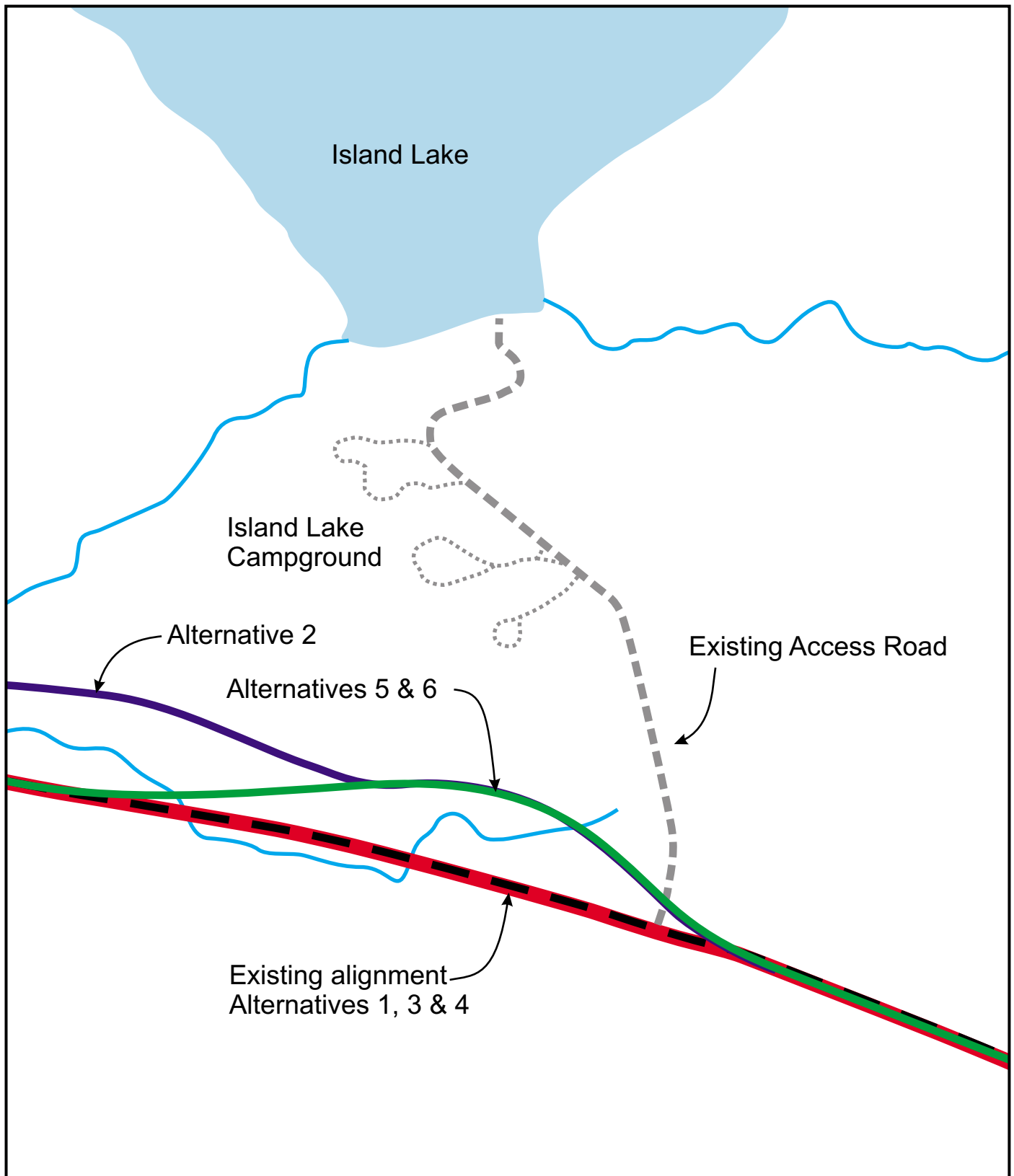
Creek bridge #2, and Long Lake bridge, are historic resources found in the project area (Figure 45). No other known historic or prehistoric resources determined eligible for listing in the NRHP were identified in the project area. The Wyoming SHPO concurred with the eligibility determinations for the five resources (Wyoming SHPO 1999).

Segment 4 of the road is eligible for listing in the NRHP as a significant engineering accomplishment, conveyed primarily by the location and footprint of the roadway. It also is eligible because of its association with significant events in U.S. history. When it was constructed in the 1930s, no other road had been built that required the engineering solutions necessary to solve the topographic challenges presented by the landscape of the Beartooth Plateau. Several sections especially convey the engineering accomplishments, such as the switchbacks in the eastern third of the project area, and the roadway alignment through the Beartooth Ravine. Features associated with the road are three culvert headwalls constructed of dry-laid masonry comprised of local granite blocks. The bridges and culvert headwalls are constructed of shaped stone and were built by contractors. Each bridge is eligible for listing in the NRHP because each represents an example of the period and style of construction.

Environmental Effects

Recreation Areas

Alignment Changes. Near the Beartooth Lake Campground, the road alignment in all build alternatives would closely follow the existing alignment south of the Beartooth Lake Campground. The alignment of any build alternative would not create a Section 4(f) use of the Beartooth Campground. The intersection of the Beartooth



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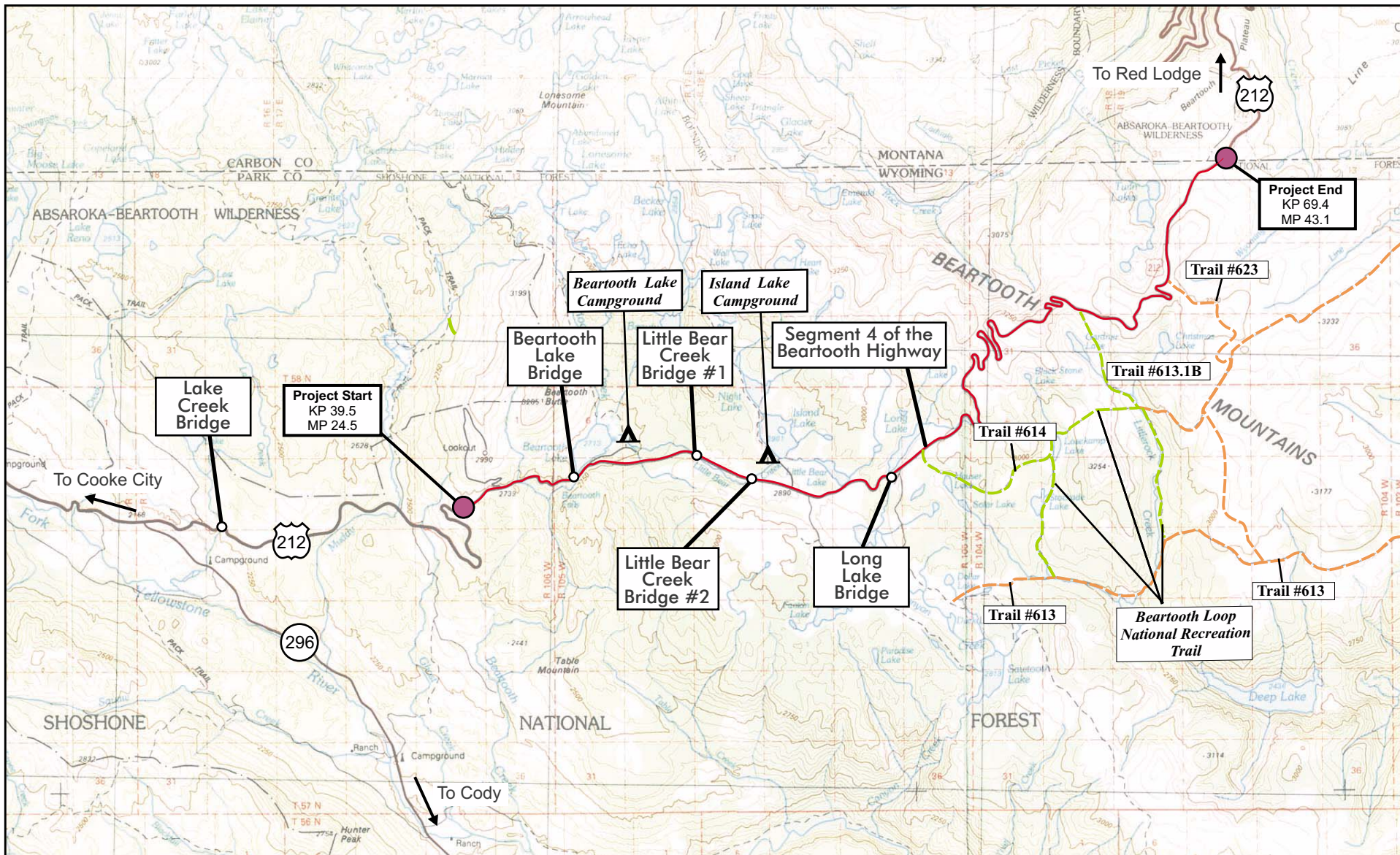
- — — Existing Alignment (Alternative 1)
- Alternative 2
- Alternatives 3 & 4
- Alternatives 5 & 6
- Campground loop roads

1 Inch = 500 Feet



Figure 44
Alternative Alignments
Near Island Lake
Campground

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- Recreation Trail closed to motorized vehicles
- Recreation Trail open to motorized vehicles

1/2 Inch = 1 Mile

N

Figure 45
Section 4(f) Properties

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campground access road and the highway would be moved to improve site distance. An apron on the access road would be paved to reduce gravel on the highway. The proposed intersection improvements would not constitute a Section 4(f) use.

Near Island Lake Campground, Alternatives 2, 5, and 6 have alignments designed to move the road up out of the Little Bear Creek valley. In these alternatives, the road would be about 100 m (330 ft.) closer to the campground than the existing alignment (Figure 44). The new road alignment would be about 175 m (575 ft.) from the campground and about 15 m (50 ft.) lower than the closest campground site. The existing access road north of the alignment would remain and a short, paved apron added to reduce gravel on the highway. More rock blasting and tree clearing south of the campground would be required in these alternatives than Alternatives 1, 3, and 4. Because of the difference in elevation and tree screening, the road in Alternatives 2, 5, and 6 would not be visible from the campground. The proximity impacts of the closer alignments and the proposed intersection changes would not substantially impair the use of the campground and would not be a constructive use.

The alignment in Alternatives 3 and 4 would closely following the existing alignment. The road would be about 275 m (875 ft.) from the campground and about 20 m (65 ft.) lower than the closest campground site. The proximity impacts of the existing alignment would not substantially impair the use of the campground and would not be a constructive use.

The existing access road at Island Lake also would be modified to accommodate the new alignment elevation in Alternatives 3 and 4. A short, paved apron on the access road would be paved to reduce

gravel on the highway. The proposed intersection changes would not constitute a Section 4(f) use.

In all build alternatives, the Gardner Lake parking area would be paved and access to the Beartooth Recreation Trail would be maintained during and after construction. Access to the Hauser Lake and Deep Lake trails would be maintained during construction and after construction is completed in all alternatives. None of the alternatives would result in a Section 4(f) use of the recreation trails.

Long-term Noise Effects. All alternatives, including the No Action Alternative, would result in higher noise levels associated with increased traffic. Predicted future noise levels in all alternatives would increase by 3 to 4 dBA at Beartooth Lake Campground. Because Alternatives 2, 5, and 6 would align the road closer to the Island Lake Campground, noise levels would increase by 6 dBA. Future noise levels at Island Lake Campground would be lowest in Alternatives 3 and 4, increasing by 3 dBA over existing levels. Noise levels associated with future traffic would remain lower than noise abatement criteria. The increased noise under any build alternative would not substantially impair the use of the campground and would not be a constructive use.

Short-term Construction Impacts. Short-term construction impacts would include increased noise and dust. Although access to the Beartooth Lake and Island Lake campgrounds would be maintained during construction, traffic control would limit access while the road section near the entrance road is under construction.

All build alternatives would have similar noise effects during construction. During construction, noise would be generated along the road by heavy equipment, blasting, and worker vehicles. The noise would be loudest near the point of generation, and would decrease with increasing

distance from the source. Dust also would be concentrated near the point of generation. During a construction season, noise and dust would be generated where construction occurs, typically a road section 1 to 3 km (1 to 2 mi.) long. Noise also would be generated during construction of the workcamp and at the staging areas and material sources. Because of the short construction season, nighttime construction would be necessary.

Campground users would be affected by the increased noise, particularly at night. Construction noise would be very audible at the Island Lake Campground and slightly lower at the Beartooth Campground and. Construction noise would be more noticeable at Island Lake Campground because existing noise levels are lower. Campground use may decrease during the 3-year construction period of the road section near the campgrounds. Construction noise levels in the campgrounds would be lower when the eastern road section is under construction. Construction-related noise and dust would cease at the end of the 6-year construction period. The increased noise under any build alternative would not substantially impair the use of the campground and would not be a constructive use. Noise is discussed in more detail in Section 3.15 (*Noise*) of Chapter 3.

Historic Properties

All build alternatives would have a physical adverse effect on the historic road and, except for Alternative 2, the four historic bridges. All build alternatives would alter the footprint and location of the roadway. Because the road and bridge width does not accommodate current vehicle types, all build alternatives would include widening the roadway to either 8.4 m (28 ft.), 9.0 m (30 ft.) or 9.6 m (32 ft.) or a combination of the three widths. The centerline in each build alternative would vary from the existing centerline in some locations.

Dismantling the masonry culvert headwalls in all build alternatives, which would be necessary to widen the road, would remove a feature associated with the historic road. Alternatives 3, 4, 5, and 6 would remove the four historic bridges and construct new ones. In Alternative 2, Little Bear Creek bridge #2 would remain in place, and the other three bridges would be dismantled and new ones built. The FHWA, in cooperation with the SHPO, would ensure that use of the Lake Creek bridge as a mitigation site would not adversely affect it.

Widening of the roadway would alter the existing footprint of the road, potentially affecting the integrity of the design and workmanship characteristics. Because the original footprint has been altered during the repaving project in the 1960s, the existing footprint does not represent the footprint as constructed in the 1930s. Alternatives 3 and 5 would use the narrower width for the entire length, while Alternatives 2 and 4 would use the larger width; Alternative 6 would use a combination of both widths. All build alternatives would have an adverse effect on the existing footprint. In addition, moving the centerline in all build alternatives also would adversely affect the road's historic integrity because the original location would be altered. The centerline would be moved in all build alternatives to minimize environmental impacts, or to improve the operation and safety of the road. Alternative 3 has an alignment that would most closely follow the existing alignment; 1,705 m (5,594 ft.) of alignment would be altered in the five realignment areas. Minor alignment shifts would occur at a few other locations in all build alternatives.

The other build alternatives include alignment changes to avoid wetland and riparian areas in the Top of the World Store area, or to provide consistent design speeds in the Beartooth Ravine area and

in some of the switchbacks. Alternative 5 would include the most change to the existing alignment, about 5,150 m (16,897 ft.).

Three of the alternatives, Alternatives 4, 5, and 6, would eliminate the original road alignment at the Beartooth Ravine with the construction of a new bridge. Alternative 4 also would involve adverse impact by eliminating switchbacks at the Albright Curve and the Bar Drift. Alternatives 2 and 3 would not adversely affect the switchbacks or ravine sections, and the road would retain integrity of location, setting, feeling, and association at these locations.

In Alternative 2, the road would avoid Little Bear Creek bridge #2 and the bridge would not be dismantled. The bridge would remain eligible for listing in the NRHP. However, once the bridge is removed from the highway alignment, it would no longer serve the function for which it was originally built, thereby creating an adverse effect to the integrity of the bridge's setting and resulting in a Section 4(f) use. Maintenance of the bridge would be uncertain, and the bridge may eventually deteriorate to a point where physical integrity would be lost.

5.4 AVOIDANCE ALTERNATIVES

No Action Alternative

In the No Action Alternative, the FHWA would not reconstruct Segment 4 of the Beartooth Highway. The road would remain 5.5 m (18 ft.) wide and in its existing alignment. As a result, the road would not move closer to Island Lake Campground. The historic bridges would not be dismantled. The maintenance needed on the bridges has not been funded and is unlikely to be completed. Future maintenance responsibilities for the road would be uncertain; whether the NPS would continue to

receive funding for snow removal or maintenance is unknown. The No Action Alternative would not fulfill the purpose and need for the project and would not be a prudent alternative.

Recreation Areas

The No Action Alternative would not directly affect the Beartooth Lake or Island Lake Campgrounds. The road alignment would not change, and would not be closer to the Island Lake Campground. Increased traffic would increase noise levels by 3 to 4 decibels.

Historic Properties

In the short term, the No Action Alternative would not affect the characteristics that make the Beartooth Highway eligible for listing in the NRHP. The long-term effects of the No Action Alternative may adversely affect the road. Funding for road maintenance would remain uncertain, and in its current alignment, road deterioration would continue. If the road would continue to deteriorate, the integrity of the road would be adversely affected. In accordance with 36 CFR Part 800.5(a)(vi), "neglect of a property which causes its deterioration" is considered an "adverse effect."

Similarly, the No Action Alternative would not have a short-term effect on the characteristics that make the four historic bridges eligible for listing in the NRHP. Over the long term, however, the bridges would continue to deteriorate, possibly until design elements and details would be compromised, or the materials could no longer be salvaged for use in subsequent bridge construction. Increased traffic volumes would also contribute to continued deterioration. If the bridges would continue to deteriorate, the integrity of the bridges would be adversely affected.

Rehabilitation of Current Alignment

In early 1998, Congress authorized rehabilitation of Segment 4. The project would repave the existing road at its current width and alignment, pave existing pullouts, replace culverts, and provide for minor roadside safety improvements such as signing, striping, and improving guardrails. Limited maintenance on the bridges would be completed. The road would remain in its existing alignment and the four historic bridges would remain. A rehabilitation project would minimize or avoid adverse effects on the road and the four bridges.

The rehabilitation project was considered to be only a temporary maintenance measure that would not correct many of the road's deficiencies identified in Chapter 1. None of the travel lanes, shoulders, or bridges would be widened and the horizontal and vertical alignment would not be changed. With an asphalt overlay, the road would be less than 5.5 m (18 ft.) wide, and the bridges would remain between 6.2 m (20.2 ft.) and 6.9 m (22.6 ft.) wide. The current inconsistent alignment combined with narrow travel lanes and lack of shoulders would continue to pose safety risks by giving motorists a false sense of security. Abrupt changes in operating speed would only be exacerbated by a smoother driving surface. The road pavement would be subject to continued raveling because of the narrow travel lane width and lack of shoulders.

Drainage structures, such as culverts, would be replaced, but the road's existing grade, narrow ditch width and shallow ditch depth, which contribute to many of the existing drainage problems, would not be corrected. Without correction of the drainage problems, the improvements of the rehabilitation project would last about 5 to 10 years. The issues of continuing maintenance and lack of jurisdiction would not be addressed.

Without continued maintenance, the road and bridges would deteriorate, adversely affecting their historic integrity.

A rehabilitation project would result in increased noise around the campgrounds. Construction noise would be generally audible in both campgrounds. Increased traffic also would increase noise levels in the campgrounds.

In late 1998 after the SNF and FHWA began considering the rehabilitation project, Congress identified the Beartooth Highway as a High Priority Project and authorized the complete reconstruction of Segment 4. Because the rehabilitation project would not address the narrow travel lanes and lack of shoulders, nor the underlying deficiencies causing the road's deterioration and would be only a temporary measure, rehabilitation is not a prudent alternative.

Alignment Options near Island Lake Campground

The FHWA considered three alignment options near the Island Lake Campground. The Existing Alignment Option would closely follow the existing alignment near the campground, with the reconstructed road widened on either side of the existing road. The distance from the road to the Island Lake Campground would not change, avoiding increased noise from a closer road. Noise associated with increased traffic would remain the same. This option was incorporated into Alternatives 3 and 4. The other two options would align the road closer to the campground and create a Section 4(f) use of the campground. The proximity impacts of the closer alignment, however, would not substantially impair the use of the campground and would not be a constructive use.

Bridge Construction Options

Several options were considered to avoid dismantling the historic bridges while ensuring all new bridges would be suitable for current and future vehicle volumes and types. The options considered were:

- Widening bridges on one side
- Using a divided highway
- Realigning the road and retaining bridges for interpretive purposes

Widening Bridges on One Side

YNP is currently completing improvements to roads throughout the park. Many of the bridges in the park are similar to the four historic bridges along the road. At some bridge locations in YNP, the bridge was widened on one side. The abutments were widened using concrete, and refaced using the existing stone from the bridge. In cases where the bridges were widened in this manner, the existing piers were wide enough with sufficient structural integrity to support a wider road deck. This option would not be feasible for the four bridges along Segment 4 of the road. The abutments and the piers of the existing bridges are not wide enough to support a widened bridge deck, nor do they possess sufficient structural strength to withstand projected future traffic loads. This option is not a feasible and prudent alternative.

Using a Divided Highway

In this option, the new road would be a divided highway in the immediate vicinity of the bridges and the existing bridges would be used for one of the traffic lanes. Because the bridges would not require widening, the existing pier and abutment widths would be adequate for use as a single traffic lane. The minor repairs needed on the bridges would be completed, but the bridges would not be

reconstructed. Consequently, the useful life of the bridges would remain between 15 and 20 years without repairs.

A divided highway would adversely affect the integrity of the road, and would not be consistent with the character of the existing road. Retaining each bridge for use as a single traffic lane would not adversely affect the bridges and they would retain their NRHP eligibility.

This option was eliminated as feasible and prudent for several reasons. A divided highway would require median barriers between the two traffic lanes. Crash cushions at the bridges also would be needed. Because a divided highway would be inconsistent with the rest of the Beartooth Highway from Red Lodge to YNP, a divided road at any of the bridge locations would pose a safety concern. A divided highway also would be inconsistent with the character of the existing highway.

The FHWA examined the feasibility of a divided road at each bridge location. At all bridge locations, a divided highway would result in greater environmental impact. Wetlands and fens are near all bridge locations. Alignments far from existing bridges that avoided wetlands and fens while retaining the existing bridges would require longer sections of divided highway and would adversely affect large areas of undisturbed mountain meadow communities and undisturbed wetlands. Because of large rock outcrops, fens could not be avoided with a divided highway at the Beartooth Lake bridge. To avoid fens at the Long Lake bridge with a divided highway, a large bridge spanning Long Lake would be needed. More wetlands adjacent to Long Lake would be affected with the approaches for the divided road. A divided highway also would affect more wetlands at the two bridge locations over Little Bear Creek.

For these reasons, this option is not a prudent alternative.

Realigning the Road and Retaining the Bridges

In this option, the road alignment would be moved from the existing alignment, a new bridge constructed where necessary along a new alignment, and the existing bridges retained. Realigning the road would move the road from its current location, which would adversely affect the road's integrity as a historic resource. The bridges would remain eligible for listing in the NRHP. Over the long term, however, the bridges would continue to deteriorate, possibly until design elements and details would be compromised, or the materials could no longer be salvaged for use in subsequent bridge construction. Increased traffic volumes would also contribute to continued deterioration. If the bridges would continue to deteriorate, the integrity of the bridges would be adversely affected. For these reasons, this option is not a prudent alternative.

5.5 MEASURES TO MINIMIZE HARM

Recreation Areas

Access to the campgrounds and trailheads would be maintained during construction. Both campgrounds, however, would be affected by increased construction noise. The FHWA would consider limiting nighttime construction adjacent to the campgrounds and Top of the World Store, when they are open. The decision would be made in cooperation with the SNF, based on the type of construction required under the selected alternative.

The FHWA would incorporate information about expected noise levels into the public information program to be distributed to the public.

Historic Resources

The FHWA, the SNF, the NPS, and the Wyoming SHPO, have developed a draft Memorandum of Agreement for mitigation of adverse effects to historic resources. The agencies are in the process of finalizing the MOA, which will be included in the Record of Decision. Mitigation of effects on Segment 4 would include preparing a formal nomination package for the Beartooth Highway for listing to the National Register and documenting any section of the original alignment selected for realignment (see Table 12 in Section 3.4). This documentation would include photographs showing the original location, footprint, and setting of the sections. Mitigation also would include interpretation of the history and construction of the road, by installing interpretive kiosks at pullouts along the road, and providing other interpretive materials for visitors. Information about the bridges would be included in the interpretive materials.

Three sites are being considered for interpretation of the original road construction (Figure 34). One site at the top of the West Summit switchbacks would provide an overview of the switchbacks leading up to the west summit (see Appendix G). A second site at the Bar Drift would provide an overview of the switchbacks leading up to the east summit. The third site at Beartooth Lake would provide interpretation of the former historic bridge at the outlet of Beartooth Lake. Interpretive historical information may be combined with information on other aspects of the area, such as geology, wildlife, and natural history. The details of the interpretation and site-specific locations would be developed by the FHWA in consultation with the Wyoming SHPO, the SNF, the NPS, and interested tribes.

Mitigation of effects to the four historic bridges and culvert headwalls would include detailed photo-documentation and drawings of the existing bridge features before they are dismantled. Documentation would be to Historic American Building Survey/Historic American Engineering Record standards. If Alternative 2 is selected, documentation would still be completed on the Little Bear Creek bridge #2, even though the bridge would not be dismantled. The SNF would not assume responsibility for maintenance of the bridge; long-term maintenance would be uncertain.

On the dismantled bridges and culvert headwalls, the original stone masonry would be salvaged. The FHWA would use the salvaged stone masonry or similar stone masonry to provide an aesthetic facing for the three culvert headwalls and new bridge abutments, except for the Beartooth Ravine bridge (Figure 36). It may be necessary to split the existing stone masonry in half to provide sufficient masonry for the new abutments. In some locations, stone form liner may be used in lieu of stone masonry if the volume or quality of the existing masonry and nearby rocks are not adequate. Bridge design would replicate the original bridges as closely as possible, given safety and construction requirements. The abutments for the Beartooth Ravine bridge would be formed to look like stone or covered with cultured stone, and the bridge would have railings similar to the other bridges.

As additional mitigation of effects to the bridges, the FHWA and the SNF would develop an interpretive site at the Lake Creek bridge (Figure 46). The site would provide information about the Lake Creek bridge as well as the other four bridges along the proposed project. The interpretation would be consistent with the Beartooth All-American Road Corridor Management Plan. The responsibility for

maintenance of the Lake Creek site would be uncertain.

5.6 COORDINATION

The USFS has responsibilities for Section 4(f) campgrounds. As a cooperating agency and SEE team member, the USFS participated in all meetings on the project. The FHWA held many meetings with the cooperating agencies to solicit their issues and concerns about the proposed project, to develop alternatives, and to review preliminary road design. The SEE team also reviewed the Draft EIS and Final EIS prior to its issuance.

The Wyoming SHPO has responsibilities for the historic Section 4(f) properties. The Wyoming SHPO was invited to all SEE team meetings, and was provided copies of all documents related to historic resources for review. The Wyoming SHPO reviewed the cultural resources survey reports and the Draft EIS. The Wyoming SHPO concurred with the eligibility determinations for the five historic resources (Wyoming SHPO 1999). The FHWA held a site visit with the Wyoming SHPO in July 2000 to discuss the proposed project and alternatives under consideration. Another

Figure 46. Lake Creek bridge.



The Lake Creek bridge crosses a series of rapids. The old Lake Creek bridge is in the foreground and the new bridge is in the trees in the background.

meeting was held in November 2001 to discuss the effects determination and comments on the Draft EIS. The SHPO attended several SEE team meetings to discuss the DEIS, avoidance alternatives, and possible mitigation. The FHWA met with the SHPO after the Draft EIS was issued to discuss the Memorandum of Agreement for mitigation of cultural resource impacts. The agencies are finalizing the Memorandum of Agreement, which will be included in the Record of Decision.

5.7 FOX CREEK CAMPGROUND

A workcamp for the project during construction is proposed at the SNF's Fox Creek Campground. A workcamp is proposed because lodging in surrounding towns such as Crandall or Cooke City is typically in extremely short supply, and the commute from Cody and other surrounding areas would be an hour and a half or more each day. The long commute would pose a safety risk for construction employees and would increase the risk of wildlife/vehicle accidents.

The Fox Creek Campground is located about 11 km (7 mi.) southeast of Cooke City, Montana near the confluence of Fox Creek and the Clarks Fork Yellowstone River. Current campground amenities include 27 campsites, pit toilets, and water pumps. The campground is one of the least used campgrounds along the road (Reynolds 2001). A spring across U.S. 212 is piped under the road and then flows by gravity to the campground. The spring water does not meet current standards for potable water and can no longer be used. The campground is more forested than other campgrounds along the road, which leads to poor air circulation. Because of the overland water flow and poor air circulation, mosquitoes are a problem during most of the camping season.

To use the campground as a workcamp, it would be modified to accommodate up to 80 workers at 33 campsites. The campground would be closed to the public during the 6-year road construction period. To be available for construction crews starting in 2005, the campground would be rebuilt to meet current SNF campground standards during 2004. The workcamp would be modified to better accommodate recreational vehicles and trailers by adding potable water and sewer facilities. Common area restrooms and showers also would be provided. The existing surface water distribution system would be eliminated. Electrical power would be provided from the nearby Cooke City power line. Limited surface disturbance and tree clearing would be needed to provide for additional trailer pads and to improve air circulation. These measures, which are necessary to provide an adequate workcamp, would also enhance future visitor experience at the campground by reducing the number of mosquitoes. The FHWA would coordinate with the SNF to prepare the final workcamp design.

Other existing campsites along U.S. 212 would continue to be open to the public during construction. After road reconstruction is completed, the SNF would resume management of the campground for public recreational use. The SNF would use and manage the campground in accordance with applicable guidelines for such facilities in grizzly bear habitat.

Because the campground is a publicly owned recreation area, its use by the project would be afforded protection under Section 4(f). Under the FHWA's environmental regulations [23 CFR 771.135(p)(7)], temporary occupancy of a campground would not be considered "use" if certain conditions would be met. The conditions are:

- Duration is temporary, i.e., less than the time needed for construction of the project, and there is no change in ownership of the land
- Scope of the work is minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) resource are minimal
- There are no anticipated permanent adverse physical impacts, nor is there interference with the activities or purpose of the resource, on either a temporary or permanent basis
- The land being used must be fully restored, i.e., the resource must be returned to a condition which is at least as good as that which existed prior to the project
- There is documented agreement of the appropriate Federal, State, or local officials having jurisdiction over the resource regarding the above conditions

Each condition is discussed in the following sections.

Temporary Use and No Change in Ownership. The use of the Fox Creek Campground would be temporary. Project construction would begin with the changes to the workcamp, and use of the site as a workcamp would end when a majority of the road construction is completed. The campground would be open to the public during the final year or two needed to complete construction of the remaining aspects of the project. Ownership of the land would remain unchanged as the campground would remain National Forest land managed by the SNF.

Minor Scope of Work. The Fox Creek Campground would be modified to provide an additional six campsites for purposes of a workcamp. After road reconstruction is completed, the SNF would resume management of the campground for public recreational use. The SNF would manage the campground in accordance with applicable

guidelines for such facilities in grizzly bear habitat. The amount of land used for the workcamp may increase slightly, but the increase would be minor. Other disturbance, such as tree clearing and constructing potable water and sewage facilities, would be minor.

No Adverse Permanent Impacts or Interference with Purpose.

The modifications would not adversely affect the Fox Creek Campground's future use. Temporarily using the campground would not interfere with the activities or the purpose of the campground. The Fox Creek Campground is one of the least used campgrounds along the road, and other nearby SNF campgrounds, such as Crazy Creek Campground or campgrounds on the GNF, offer similar amenities as the Fox Creek Campground and would provide ample camping opportunities during the construction season (Gardner 2002; SNF 2002). The Crazy Creek Campground on the SNF has 19 sites and is 7 km (4 mi.) east of the Fox Creek Campground. Three campgrounds are between 12 and 16 km (7 and 10 mi.) west of the Fox Creek Campground on the GNF: Chief Joseph, Colter and Soda Butte. These campgrounds have a total of 50 campsites.

Campground Fully Restored. The campground would be modified for temporary use as a workcamp by providing potable water and a septic system and additional campsites. When the SNF resumes management, the campground could better accommodate recreation vehicles, which is needed along the road (SNF 2002). Prior to returning the workcamp to the SNF for management as a campground, any necessary modifications would be made to comply with applicable guidelines for such facilities in grizzly bear habitat.

Agreement with the SNF. The SNF has reviewed this analysis and concurs with the

findings that the use of the Fox Creek Campground would be a temporary occupancy that would not be adverse in terms of the Section 4(f) preservationist purposes (SNF 2002) (Appendix D).

5.8 REFERENCES

- Federal Highway Administration. 1998c. Notice of intent. 63 FR 47081.
- Gardner, R.A. 2002. Resource assistant, U.S. Forest Service, Gallatin National Forest, Cody, WY. email communication with Richard Trenholme, ERO Resources Corp.
- Shoshone National Forest. 2002. Letter to Bert McCauley, Federal Highway Administration. April 16.